Missouri Botanical Garden

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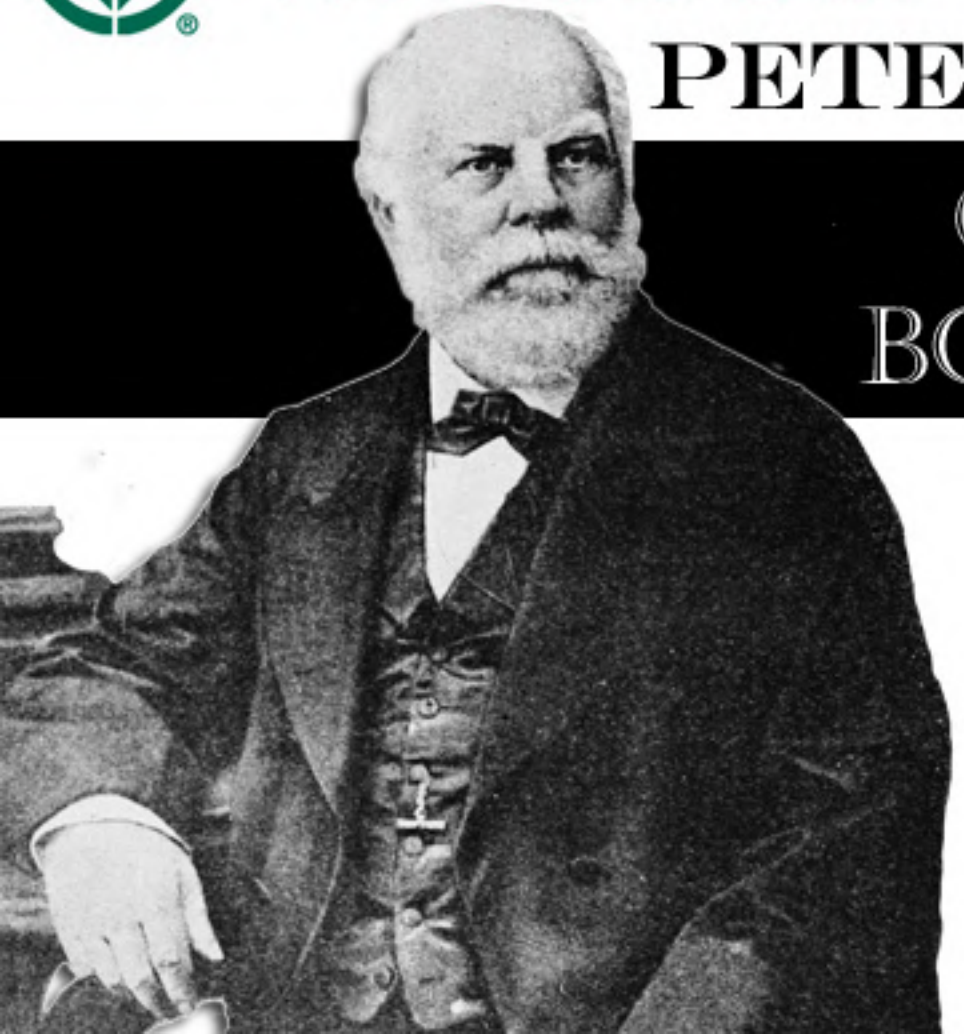

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Loranthaceae

148

97 Loranthaceae

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Vaccinium Myrtillus L.

Pers. I 478
Roth. II, 244
Spr II, 211

In ericetis, sylvaticis arenosis
Europae.

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PARASITE PLANTS.

SOON after leaving Sta. Rosa the hill-sides are seen to be covered with the tall candelabra-like Cactus, Cereus Quisco. It has a most strange appearance. Other forms of Cacti, each adapted to the climate of a particular altitude, succeed one another as the slopes of the Andes are climbed, those that lie highest being dwarf forms, scarcely rising above the ground. On the Cereus Quisco grows a Mistleto (Loranthus aphyllus). This Mistleto is most remarkable, because, like the plant on which it is parasitic, it is entirely devoid of leaves. It is extremely abundant, growing on nearly all the Cereus trees, and is very conspicuous, because its short stems are of a bright pink colour. I could not understand what it was at first, as it looked like a pink inflorescence of some kind belonging to the Cactus. Mr. Thiselton Dyer has examined the mass of parasitic tissue of this Mistleto, which draws the nourishment from the interior of the stem of the Cactus. He finds that having a soft and succulent matter in which to ramify, the basal fibres of the parasite form a large spongy mass of great size within the stem of the Cactus, which curiously simulates a mass of mycelium, such as produced by a parasitic fungus. The fact that the Mistleto growing on a leafless Cactus has no leaves itself, reminded me of a remark which Sir William MacArthur made to me in New South Wales. He told me that he had noticed that the Mistleto growing on the various species of Gum trees (Eucalyptus) simulated in their foliage that of the tree on which they grew, so that from that reason they were difficult to find. He pointed out to me examples. The leaves of one Australian species of Mistleto (Loranthus celastroides), which grows on a species of Eucalyptus, are so like those of the Eucalyptus itself that the varieties of the species have been termed L. eucalyptifolius. The Australian species of Loranthus have commonly two very different forms of leaves, broad and narrow. In the case of L. celastroides the broad-leaved varieties grow on Banksias mostly, and the narrow-leaved on Eucalypti; but both forms occur on a species of Casuarina, which is a tree with narrow needle-like leaves; all gradations occur between the two varieties of this Mistleto.* Loranthus aphyllus is the only Loranthus without leaves. It grows only upon the Cereus Quisco. There are, however, species of the genus Misodendron of the Mistleto family which are leafless, and yet grow on trees with well developed leaves, as the Fuegian Beech trees. Probably the leafless Mistleto on the Cactus has got rid of its leaves for the same reason as the Cactus, viz., to minimise loss of moisture by evaporation in an arid climate—the Australian Mistletos possibly for adapting their leaves to the forms of those of the Gum trees in order to benefit the trees, and thus themselves, by interfering as little as possible with the vegetation at the roots of their host. They can hardly be supposed to gain by being inconspicuous, but must rather be certain to lose thereby.
Notes of a Naturalist on the "Challenger," by H. N. Moseley.

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METEOROLOGY.

[COMPILED IN THE DEPARTMENT OF AGRICULTURE FROM REPORTS MADE BY OBSERVERS OF THE SMITHSONIAN INSTITUTION.]

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain and melted snow, (in inches and tenths,) for February and March, 1871, at the stations named. Daily observations made at 7 a. m., and 2 and 9 p. m

Stations in States and Territories.	FEBRUARY.						MARCH.					
	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
MAINE.		*Deg.*		*Deg.*	*Deg.*	*In.*		*Deg.*		*Deg.*	*Deg.*	*In.*
Houlton	27	49	5	—20	16.0	1.20	12	51	7	14	32.4	2.23
Orono	25	47	5	– 17	19.9	2.53	10	57	29	17	34.7	4.11
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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should be churned every day, the butter thoroughly worked, and the dairy kept perfectly clean.

CHEESE FACTORIES IN ENGLAND.—The manufacture of cheese by the factory system is an American idea, and until recently has been exclusively an American enterprise. During 1870 the system was introduced into England, and two factories were established in Derbyshire. No Englishman was found to possess sufficient experience to manage them, and two Americans, named Schermerhorn, were engaged to perform this service. Both factories are now in successful operation.

KOUMISS.—This is the name of an article of food recently introduced into England from Germany. It is of Tartar origin, and in its original form is made by fermenting mare's milk and agitating it during the process. Cow's milk is used as a substitute. The result of the treatment is a mixture of alcohol, carbonic acid, lactic acid, and finely divided caseine and butter, with the residue of the sugar and salts of the milk, in taste resembling a mixture of champagne and cream, and supposed, as the Tartars are very athletic, to be conducive to health and a preventive of phthisis.

PRESERVATION OF FRUITS AND VEGETABLES.—An invention of Mr. Buchanan for preserving fruits and vegetables is attracting some attention in England. The moisture is expelled by a cold dry process, instead of the former modes of desiccation by heat. It is said to preserve vegetables and fruits in a much more perfect and palatable state than the heating process so generally in use.

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March 22 1872

Phoradendron juniperinum

position of stomate

joint and leaf

×4

×280

×60

stomata transverse on epidermis of stem and outside of leaf — none on inside

wood the same as in Arceuthobium

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CHRONOMETERS

South West Corner Fifth and Market Streets.

Phoxal. flaversens

March 22 1872

on the Ohio 1840, Feb. on Sycamore

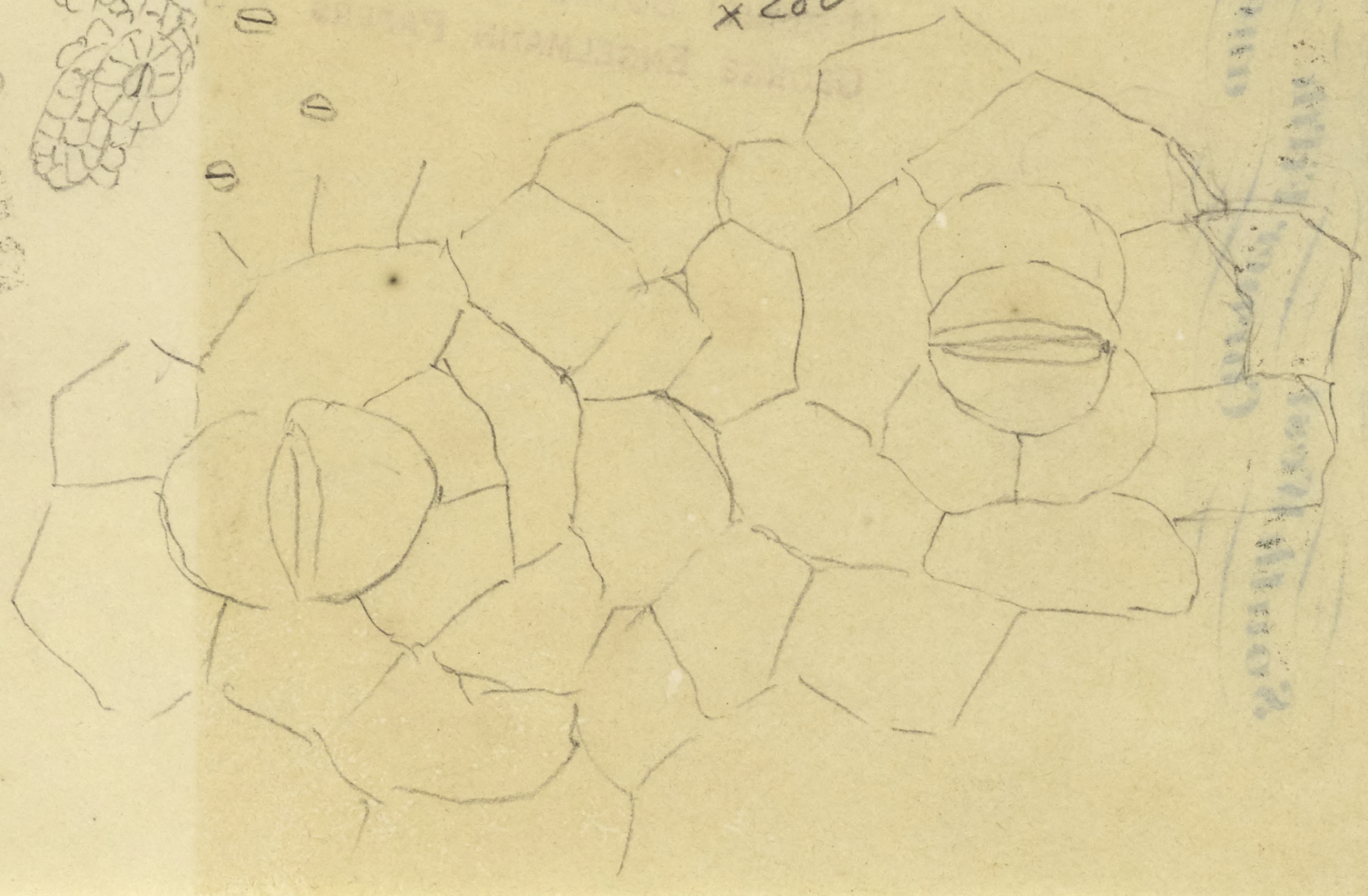
J.E

stomata equal on both sides
of leaf, and in all directions

very few hair
on leaves

×60

×280



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DRUGGISTS
South West Corner Fifth and Market Streets.

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Thor. flavescens

22 March 1872

young branch

epidermis of young branch

×60

stomata irregular

but mostly transverse

×280

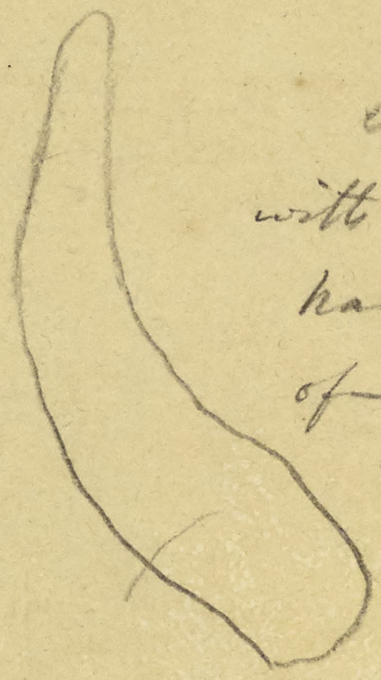
epidermis off stem

with rolled

hair

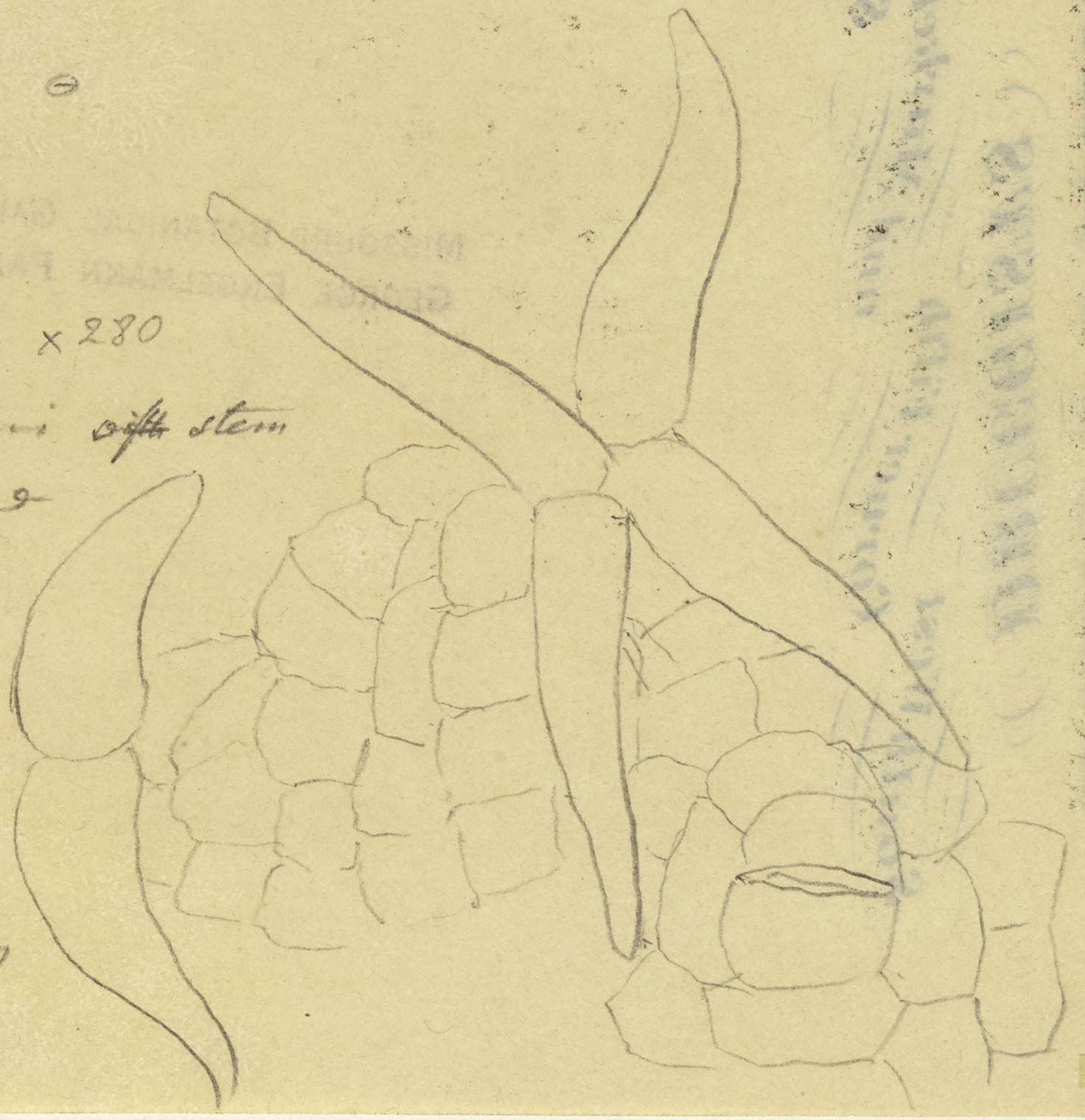
of several

together



hair more abundant

on stem than leaves



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Thorandendron juniperinum

April 6 1821

Pollengrain x 415

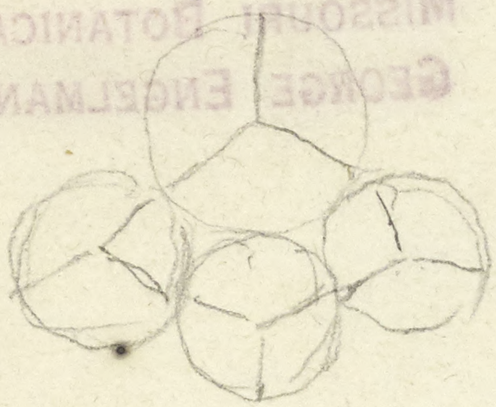
ovul and globose

New Mexico June 1880 E L Greene

x 10

mid in entire style long

x10



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Rec June 5th
Ans same day

25, WILTON PLACE.
London S.W.
May 23/79

My dear Sir

If I have been remiss in thanking you for your letter and the specimens of Thoradeadron juniperinum it was caused by my wish to go over the matter again and I was otherwise engaged. and notwithstanding the great reliance I am always disposed to place on the accuracy of your observations I must say I cannot make up my mind to regard this plant as a Thoradendron at least until the male flower has been seen in a perfect state. The fruit indeed in its shape and succulence is more like that of

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a Ricinus or some species of Phoradendron
than of the common Arceuthobium but
in the very numerous species of Phora-
dendron and Dendrophthora the fruits
varies in shape and succulence and
for the circumscisis dehiscence of the
fruit of Arceuthobium of which you
make a sketch I cannot say that I
can find any trace of it in our
specimens. The berry seems to ~~be~~
~~a~~ have a rather broad ~~base~~
scpeli or the dilated pedicel so as to
show a transverse line quite as it does
but no such line above its base
At all events the difference in the
fruit between A. juniperinum and
Arceuthobium Oxycedri does not appear

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to see to override the other characters
especially the ramifications and
inflorescence which seem to me to be
quite at variance with the whole
genera Rhododendron and Dendrothamnus
(of the two together we have between 70
and 80 species) and precisely those
of Azaleastrum where there are
sometimes on each side of the branch
2 collateral flowers and occasionally
a third between them - never the
peculiar articulate spike of Rhododendron
However I perfectly agree to its
being considered a most perfect till
the perfect male flower has been seen
If it be a Rhododendron it quite destroys
the very natural character of that genus

I can only repeat my best
thanks for the kind manner in which
you have communicated with me
and beg you to believe me

Dear Sir yours sincerely

George Bentham

Dr Engelmann

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Loranthaceæ.

Flowers dioecious (in our genera). Sepals
2-~~8~~ 5 ~~mostly 3~~ distinct or coherent, valvate in æstiva-
tion. ~~Stamens~~ anthers as many as the sepals and
inserted upon them; ~~anthers~~ in ours 1- 2 ~~many~~-celled.
Ovary inferior-, 1- celled, 1-ovuled; ovule ses-
sile, erect, orthotropous; style simple or
none. Fruit a berry with glutinous endosperm
copious; ~~or coarse~~ axile ~~or lateral~~, in ours embryo straight, the radicle superior. —
Parasitical evergreens with dichotomous knotted
or jointed branches; leaves (mostly) opposite, estipulate, foliaceous or reduced to connate scales,
thick and coriaceous, entire, ~~or toothed~~; flow-
ers small and inconspicuous, ~~white or~~
greenish ~~yellow~~.

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Lon. And. Phil. v. xv. 1. 185

Phoradendron, Nutt.

Flowers ~~dioecious~~ dioecious, globose, ~~in short~~ immersed in the rachis pointed spikes;
calyx 3- (rarely 2- or 4-) lobed; anthers sessile upon
~~the bases of~~ the lobes, ~~transversely~~ 2-celled, the
cells dehiscent by a pore or slit; stigmas
sessile, obtuse, more or less 2-lobed; berry
globose, pulpy, semi-transparent, crowned
with the persistent sepals. — Yellowish-green
woody parasites on the branches of trees;
flowers ~~usually~~ several ~~in the axils of each bract~~ to each joint
and sunk in the rachis of the spike;

spikes of male ~~plants~~ longer and each joint with more flowers than those of female plants;

Opposite leaves dilated & attenuate at base, ~~or reduced to connate scales~~

distinct, ~~usually~~

Spikes single or two or more in the axils, or rarely terminal, the lowest ~~joint~~ sterile, ~~from~~ representing a sort of pedicle, ~~flower-bearing~~ joints 1- many-flowered; ~~staminate~~ male ~~spikes~~ always on each side of the ~~fertile~~ joint; ~~pistillate~~ spikes always of more joints, and with more flowers than staminate ones

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over

1. P. flavescens, Nutt. Branches terete, pu-
bescent when young (as also the spikes),
often a foot or more long; leaves oblanceo-
late to obovate, or obovate-oblong, ½-2 inches long, atten-
uate to a short petiole, obtuse, 3-nerved,
glaborous; staminate spikes opposite or
~~subverticillate~~, rarely equaling or surpassing the leaves, 3-7
~~4-5~~-jointed, the numerous flowers mostly in 4-6 rows on each side occupying nearly
the whole joint; ~~anthers 2-celled~~; pistillate spikes
opposite, sometimes in pairs, usually shorter,
3-4-jointed (rarely 5-6), the flowers fewer, 3-7 on each side, ~~(4-10) rather central~~ or
not more than 3 rows
~~towards the upper end~~ of each joint; bracts con-
nate into a short truncate cup; calyx 3-cleft,
depressed globose; berries white, 2 lines in di-
ameter. — Jour. Acad. Phil., n. ser., I., p. 185.
from Kawsmouth Bush

Var. ~~villosum, Engelm~~ tomentosum. More or less tomen-
tose throughout; pistillate spikes mostly short,
2-3-jointed, more densely flowered; fruit glaborous
excepting the crown. — Viscum tomentosum, DC. Prodr., 4.670.
P. villosum, Nutt., l. c.; En-
gelm., Pl. Lindh., p. 212. ~~P. tomentosum, Engelm.~~,

Frequent on oak, sycamore and other de-
ciduous trees in the valleys of California

over

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The following forms pass into each other

macrophylla — **glabrata borealis** — with short broad leaves and short spikes

glabrata australis with narrow longer spatulate leaves and longer slender spikes

macrophylla with large broad often 5 nerved (2–2½ inches long) leaves and short open spikes with short thick usually flowers (only Arizona & Southern Calif. Dopl. Plateau Region) with small globose short thick spikes

tomentosa about as above, but leaves densely woolly (Dr.)

villosa with densely woolly leaves with slender spikes (Calif. & Oregon on Oaks principally evergreen or deciduous)

Watt

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and ranging from the Columbia River to Southern California, thence eastward to New Mexico. All the occurring forms seem referable to this variety.

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2. P. Bolleanum, Seem. Puberulent, at length glabrous; branches terete, 4-6 inches long or more; leaves thick spatulate to spatulate-linear, ½-1 inch long, 1-3 lines wide, nerveless, obtuse or acute; spikes axillary, opposite, or in 4's sessile or shortly pedicelled, of a single joint with 1-6 flowers; bracts connate at base minutely ciliate, acutish; calyx 3-lobed; † fruit scatters 2-lobed; male flowers with an abortive ovary and distinct style; fruit white, 1-2 lines in diameter. — Bot. Herald, p. 295, t. 63.

P. paucifloram, Torrey, Pac. R. R. Report, IV., p. 134.

On conifers from Central California and New Mexico; to Northern Mexico A Duffield's Ranch (Newberry); near the Geyseno (Brewer.) Flowers frequently solitary. Below (Bigelow) A specimen on Mrs Carroll's ink or more long — 4 stalk under is larger with leaves

† Male spikes — 4" fl. heavy of two joints each with 6-12 flowers Pedicels spikes, 4-6 opposite, with a single 4 bony joint, with 2 flowers

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** Leaves reduced to connate scales;
pistillate spikes of few 1-2-flowered joints.

3. P. Californicum, Nutt. Glabrous;
branches terete, slender, a foot long or more;
scales broadly ovate, acute, spreading; spikes
opposite, 2-3-jointed, the staminate short
(3 lines long) with about three flowers on opposite
sides of each joint, the pistillate ½-1 inch
long with opposite solitary flowers near
the tops of the joints; bracts connate,
acute, minutely ciliate; calyx 3-4-lobed,
sometimes deeply imbricate in the buds;
fruit white or reddish, nearly two lines in
diameter. — Proc. Acad. Phil., n. ser., I., p.
185. Engelm., Pl. Lindh., p. 213.

Or Algarobia, Larrea, Populus,
and other deciduous trees and shrubs,
Southern California and Arizonia.

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4. P. jimiperinima, Engelm. Glabrous;
branches terete, stout, densely branched,
or more
6-9 inches high; scales broadly triangular,
acutish (commate or distinct), somewhat
ciliate; fistillate spikes ~~sporiti~~,
~~very short, 1-jointed~~, 2-3 flowered; calyx
or white
3-lobed; fruit globose, light red, 1½ lines
in diameter. — Pl. Fendl., p. 58.

On Juniperus occidentalis in the
Species
mountains from Truckee pass south-
ward and ranging east through Nevada Utah Arizona
to New Mexico. ~~Staminate specimens~~
probably
~~have not been collected.~~ M. monadelphia who pistillate
not to be collected

~~A~~ spikes opposite ~~or~~ terminal, consisting of
very short
one pedunculate ~~supported~~ and one sessile, ~~or~~ joint,
stamen spike ~~with~~ 6 flowered.

~~with~~ 6 flowered.

young
~~with~~ Ph. Libocedri ~~broadly~~ long — Flesh-
joint longer; ~~first~~ stamen joint ~~with~~ spike terminal
~~flower~~ 4 5
~~2 the~~ ~~fifth~~ single joint ~~of~~ pistillate 2.

On Libocedrus
from Yuba Co to San Bernardino
Bigelow (Lemmon Parry)

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MISSOURI BOTANICAL GARDEN

Loranthaceae collected by Dr. G K Gilbert
in Lieut Wheeler's Explor. west of the 100th Meridian

106 (2) Phoradendron flavescens Nutt. on Salix, on Gila R. Sept 19th 1873
107 (5) " " microph " Villosa " On Quercus near Camp Apache Aug. 29
105 (6) " " " On Alnus? Campestris? Bonito River Sept 18
102 (7) " " " On Sapindus " " Sept 18
114 (8) " " villosa on "Live oak" Camp Apache Aug 11
104 (11) " " on Fraxinus, " Gila River Sept 19
103 (9) Ph. Californicum Nutt. on Algarbia on Gila Sept 19
115 (1) Ph. Juniperinum Engelm. on Juniperus " " "
110 (3) " " " Camp Apache Aug
101 (4) " " " " " " Aug 11
111 (10) " " "Red Cedar" near C Apache Aug 29

108 (13) Arceuthobium robustum Engl. P. ponderosa, Apache Aug 29
116 (16) A divaricatum Engl. P. edulis Salt Cr. Aug 28
109 (12) A. " intermedium Ab Douglasii " Apache Aug 31
112 (15) A " minutissimum A Engelm Siera Blanca Aug 13
100 (14) A " " " " " Aug 22

113. 100 — 116 (except 113 & ~~114~~, not represented — is it the big Ph. Calif.

2.50

0.75
0.87
1.62

62 : 100 = x : 250
62
500
1500
1550

3/4 7/8
2.50
1.53

0 1 2 3 4 5 6 7 8 9 10 cm
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cm 0 1 2 3 4 5 6 7 8 9 10 copyright reserved MISSOURI BOTANICAL GARDEN

servations.

Very truly yours,

Joseph Henry

Dr. Geo. Engelmann,

3003 Locust St.,

St. Louis, Mo.

Secty S. I.

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5569

Morphology of Loranthaceae
& Physiology

Bot. Jeitung 1874 no 9 p. 129 ff Solms Laubach

(from: John Scott, Loranthaceae, germination etc, Journal of Agri'cult & Horticult Soc. of India II. 2. 1871 20 pages.

quoted above as Th

Richter, Mark H. Bros. Jaarb 44.

Harley, Parasitism of the Mistletoe. Trans Lin Soc. XXIV

Unger Ann Wien Mus II. 1840

Schacht Beitr 1854. p. 173–180: Lehrbuch p. 56. & 466

Ritz Bot Jeitg. 1861. p. 61

Solms Laubach Die Haustorien der Loranthaceen in Abh. Naturf. Ges. Halle 1875 XIII. 3 p. 237–276, 4 plates

Vi

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GEORGE ENGELMANN PAPERS

5360

Lafayette College
Easton Pa. Oct. 7, 1873.

Dear Sir

The public exercises at the dedication of Pardee Hall will take place Tuesday October 21st

An address will be delivered in the main auditorium of the building at eleven oclock by R. W. Raymond Ph. D., Lecturer on Mining Geology in the College and President of the American Institute of Mining Engineers. A collation will be served on the College grounds from One to Two oclock.

The exercises in the afternoon will commence at Three.

You are cordially invited to be present.

Very Respectfully

W. C. Cattell

President of the Faculty.

0 1 2 3 4 5 6 7 8 9 10
cm
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MISSOURI BOTANICAL GARDEN

Printed and Manuscript notes on Loranthaceae J. Eaglesham

Viscum Lin Plant Fendl. 1849 p. 58 note N. Linh. II. 212 note (1850)
E. Mss p. 21

Phoradendron Nutt (N. Gamb 1848. p. 185 Spicatum Eng) Journ Ac. Phil I. (1848)
N. Fendl. 1849 p. 58. note N. Linh. II 212 note (1850)
E. Mss p. 21

Arceuthobium M Bieb. N. Fendl. 1849. p. 58 note N. Linh. II. 213 Note. (1850)
E. Mss p. 22. 30

A. Oxycedri M Bieb N. Linh II. 213 note (1850) E. mss. p. 26 c fig p. 29. 30.

A. Americanum Nutt N. Linh. II. 213. note (1850) (see Torr Gr. N. 1. 655) E. Mss p. 24 c. fig. 29. 30

A. campylopodum Eng. N. Linh (1850) II. 214 note

var. macranthron N. Linh. II (1850) 214 note E Mss p. 27 c fig. 6i p. 29 6b p. 16. c fig. 17. 24

var ? brachyanthron N Linh. II (1850) 214 note E. Mss. p. 28 c fig p. 29

A. cryptopodum Eng. N. Linh. II (1850) 214 note E. Mss. p. 14 c. fig. 17. 23. 29. 32

Viscum album L. E. Mss. p. 18 c fig

Phoradendron flavescens Nutt N. Fendl. 59 note N. Linh II. 212 note E. Mss. p 19 c fig. 22

α. glabriusculum. N. Linh. II. 212 note

β. puberum N. Linh. II. 212 note

γ. obiculatum N. Linh. II. 212 note Ph. obiculatum. N. Fendl. 59 note E. Mss. 19 c fig 22

Ph. tomentosum DC. (ex Ulloa) N. Linh. II. 212 N. Fendl. 59. note E. Mss. p. 20 c fig. 22.

Ph. villosum Nutt (ex Ulloa ~~N. L. II~~ in Torr Gr N. 1. 654) N. Linh. II. 212 note E. Mss p. 25 c fig

Ph. lanceolatum Eng. N. Fendl. 59. note E. Mss. p. 20 c fig p 23

Ph. juniperinum Eng. N. Fendl. 58 E Mss p. 15 c fig. 17. 23

Ph. Californicum. Nutt. Journ Ac. Phil. I. 185 (N. Gamb. 1848) Bot Whip. 134 (1857) N. Linh. II. 213 note E. Mss. p. 25 c fig

Ph. pauciflorum Torr = Bot Whip. 1857 p. 134

0 1 2 3 4 5 6 7 8 9 10
cm
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June 1871

Yucca, Lin

Perianth cupshaped of six (whitish) petal-like leaves, withering-persistent. Longer than the 6 stamens (clubshaped) stigmas 3 bilobed; more or less united pod oblong or cylindrical, somewhat 6 sided, ~~incompletely~~ 6 celled ~~pulpy~~ fleshy and indehiscent, or dry and 3 celled, the cells incompletely 6 celled by a partition from the back, (pulpy and indehiscent, or dyad Dehiscent from the apex) seeds very numerous (flat, horizontal in 6 rows), black, with the broad (short or dorsal) cuneate subtype of the same length as the ~~wavy~~ albumen.

~~Eu-Yucca~~ Stems woody, fibrous, very short or rising into thick columnar palm like trunks simple or branching; leaves persistent rigid linear or lance linear leaves with smooth, rough or filamentous edges.

A Eu Yucca Flowers (more or less pendulous and ~~dark~~ purple) in a spike, raceme or panicle (or rarely solitary) the ovary sometimes globular and half closed in the morning, ~~filaments~~ Stamens shorter than the pistil, often ~~obtuse~~ club shaped, papillose-pubescent, ~~when~~ at last recurved, ovary ~~authers~~ oblong ~~or~~ somewhat prismatic-subcylindric, stigmas sessile, obtuse or more or less deeply divided short-papillose ~~cylindric~~ fleshy and indehiscent, ~~pendulous~~ pendulous thick ~~seeds~~ ~~rather~~ ~~thick~~ somewhat rugose, with deeply lobed (ruminated) albumen

a. Sarcocarpa ~~pod~~ fruit ~~pendulous~~ thick, fleshy and indehiscent, seeds

b. Clisto carpa fruit ~~dry~~ at last ~~entire~~ dry and indehiscent, seeds Thick, smooth, with ~~undivided~~ entire albumen (flowers unknown)

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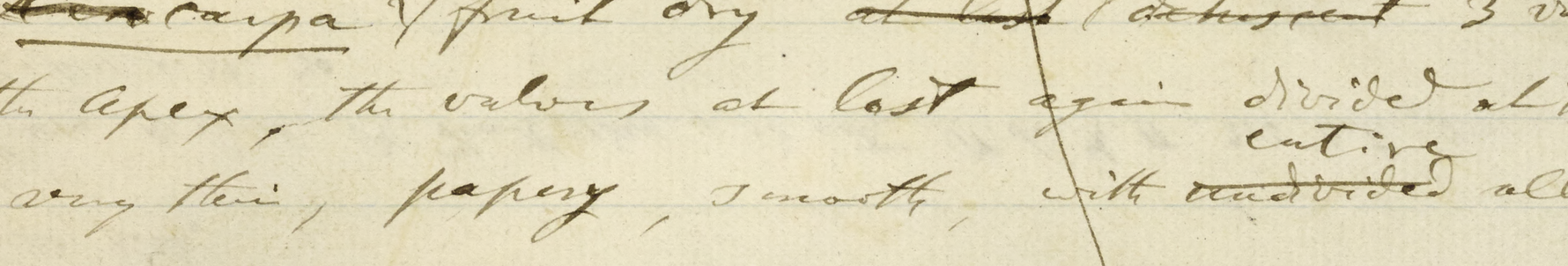
c. Chaeno ~~Ken~~ carpa fruit dry ~~at last~~ erect septicidally dehiscent 3 valved from the apex, the valves at last again divided at the tip, seeds very thin, papery, smooth, with ~~undivided~~ entire albumen.

B Hespero Yucca Flowers ~~dark~~ purple filaments thickened upwards ~~ventricose~~, acute, smooth, ~~as long or longer than~~ mostly longer than the pistil; anthers didymous broader than long; ovary ~~ovate~~, ~~slender~~ style ~~with~~ a short 3 lobed stigma broad ~~bearing~~ with filiform papillae; ~~and~~ capsule dry ovate trilocular 3 valved ~~between~~ at the apex, ~~valves undivided~~; seeds thin papery, smooth, with ~~undivided~~ entire albumen.

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